IN THE CLAIMS:

Claims 1, 7, 9 through 11, 15, 25, and 26 have been amended herein. Claims 6, 8, 36 through 40 and 44 through 56 have been cancelled. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An instrumented pin member, comprising:

a pin member body disposed about a pin member axis, the pin member body comprising a shank including a shank perimeter lying in a plane orthogonal to the pin member axis and a bending portion;

a sensing device positioned at the pin member body within the bending portion for sensing a bending strain in the bending portion exclusive of a net axial strain, and for outputting a sensor measurement signal representative of the bending ~~strain;~~strain, the sensing device comprising:

first and second x axis sensor elements configured for measuring the bending strain along an x axis, each of the first and second x axis sensor elements comprising a tangential sensor for sensing strain in a direction tangential to the shank perimeter; and

first and second y axis sensor elements configured for measuring the bending strain along a y axis; and

a sensor measurement signal output device for outputting the sensor measurement signal from the sensing device.

2. (Previously presented) The instrumented pin member as recited in claim 1, wherein the sensing device senses components of the bending strain in the bending portion along an x axis and a y axis, the x axis and the y axis being orthogonal to the pin member axis and to

each other.

3. (Previously presented) The instrumented pin member as recited in claim 1, wherein the pin member body comprises a bolt.

4. (Previously presented) The instrumented pin member as recited in claim 1, wherein the pin member body has a cylindrical shape about the pin member axis.

5. (Previously presented) The instrumented pin member as recited in claim 1, wherein:
the pin member body comprises a head; and
the bending portion is adjacent to the head.

6. (Cancelled)

7. (Currently Amended) The instrumented pin member as recited in ~~claim 6,~~claim 1, wherein each of the first and second x axis sensor elements further comprises an axial sensor for sensing strain in a pin member axial direction corresponding to the pin member axis.

8. (Cancelled)

9. (Currently Amended) The instrumented pin member as recited in ~~claim 6,~~claim 1, wherein each of the first and second y axis sensor elements comprises an axial sensor for sensing strain in a pin member axial direction corresponding to the pin member axis.

10. (Currently Amended) The instrumented pin member as recited in ~~claim 6,~~claim 1, wherein ~~wherein:~~
~~the pin member body comprises a shank including a shank perimeter lying in a plane orthogonal to the pin member axis; and~~

each of the first and second y axis sensor elements comprises a tangential sensor for sensing strain in a direction tangential to the shank perimeter.

11. (Currently Amended) The instrumented pin member as recited in ~~claim 6,~~claim 1, wherein:

each of the first and second x axis sensor elements and each of the first and second y axis sensor elements comprises an axial sensor for sensing strain in a pin member axial direction corresponding to the pin member axis;

~~the pin member body comprises a shank including a shank perimeter lying in a plane orthogonal to the pin member axis;~~ and

~~each of the first and second x axis sensor elements and~~ each of the first and second y axis sensor elements comprises a tangential sensor for sensing strain in a direction tangential to the shank perimeter.

12. (Previously presented) The instrumented pin member as recited in claim 7, wherein the sensing device further comprises:

an x axis bridge having a left side and a right side, the left x axis bridge side comprising first and second positions and the right x axis bridge side comprising first and second positions;

the first position of the left x axis bridge side and the first position of the right x axis bridge side being in a first aligned x axis configuration; and

the second position of the left x axis bridge side and the second position of the right x axis bridge side being in a second aligned x axis configuration, the axial sensors of the first and second x axis sensor elements being in one of the first aligned x axis configuration and the second aligned x axis configuration.

13. (Previously presented) The instrumented pin member as recited in claim 7, wherein the sensing device further comprises:

an x axis bridge having a left side and a right side, the left x axis bridge side comprising first and second positions and the right x axis bridge side comprising first and

second positions;

the first position of the left x axis bridge side and the first position of the right x axis bridge side being in a first aligned x axis configuration; and

the second position of the left x axis bridge side and the second position of the right x axis bridge side being in a second aligned x axis configuration; and

an axial stress measurement configuration and a bending stress measurement configuration, the sensing device being in the bending stress measurement mode when the axial sensors of the first and second x axis sensor elements are in one of the first aligned x axis configuration and the second aligned x axis configuration.

14. (Previously presented) The instrumented pin member as recited in claim 13, wherein the sensing device is in the axial stress measurement configuration when the axial sensors of the first and second x axis sensor elements are not in one of the first aligned x axis configuration and the second aligned x axis configuration.

15. (Currently Amended) The instrumented pin member as recited in ~~claim 8~~claim1, wherein: the sensing device comprises:

an x axis bridge having a left side and a right side, the left x axis bridge side comprising first and second positions and the right x axis bridge side comprising first and second positions;

the first position of the left x axis bridge side and the first position of the right x axis bridge side being in a first aligned x axis configuration; and

the second position of the left x axis bridge side and the second position of the right x axis bridge side being in a second aligned x axis configuration;

the tangential sensors of the first and second x axis sensor elements being in one of the first aligned x axis configuration and the second aligned x axis configuration.

16. (Previously presented) The instrumented pin member as recited in claim 11, wherein the sensing device comprises:

an x axis bridge having a left side and a right side, the left x axis bridge side comprising first and second positions and the right x axis bridge side comprising first and second positions;

the first position of the left x axis bridge side and the first position of the right x axis bridge side being in a first aligned x axis configuration; and

the second position of the left x axis bridge side and the second position of the right x axis bridge side being in a second aligned x axis configuration; and

an axial stress measurement configuration and a bending stress measurement configuration, the sensing device being in the bending stress measurement configuration when the tangential sensors of the first and second x axis sensor elements are in one of the first aligned x axis configuration and the second aligned x axis configuration.

17. (Previously presented) The instrumented pin member as recited in claim 16, wherein the sensing device is in the axial stress measurement configuration when the tangential sensors of the first and second x axis sensor elements are not in one of the first aligned x axis configuration and the second aligned x axis configuration.

18. (Previously presented) The instrumented pin member as recited in claim 9, wherein the sensing device comprises:

a y axis bridge having a left side and a right side, the left y axis bridge side comprising first and second positions and the right y axis bridge side comprising first and second positions;

the first position of the left y axis bridge side and the first position of the right y axis bridge side being in a first aligned y axis configuration; and

the second position of the left y axis bridge side and the second position of the right y axis bridge side being in a second aligned y axis configuration;

the axial sensors of the first and second y axis sensor elements being in one of the first aligned y axis configuration and the second aligned y axis configuration.

19. (Previously presented) The instrumented pin member as recited in claim 18, wherein the sensing device further comprises:

an axial stress measurement configuration and a bending stress measurement configuration, the sensing device being in the bending stress measurement configuration when the axial sensors of the first and second y axis sensor elements are in one of the first aligned y axis configuration and the second aligned y axis configuration.

20. (Previously presented) The instrumented pin member as recited in claim 19, wherein the sensing device is in the axial stress measurement configuration when the axial sensors of the first and second y axis sensor elements are not in one of the first aligned y axis configuration and the second aligned y axis configuration.

21. (Previously presented) The instrumented pin member as recited in claim 10, wherein the sensing device further comprises:

a y axis bridge having a left side and a right side, the left y axis bridge side comprising first and second positions and the right y axis bridge side comprising first and second positions;

the first position of the left y axis bridge side and the first position of the right y axis bridge side being in a first aligned y axis configuration; and

the second position of the left y axis bridge side and the second position of the right y axis bridge side being in a second aligned y axis configuration;

the tangential sensors of the first and second y axis sensor elements being in one of the first aligned y axis configuration and the second aligned y axis configuration.

22. (Previously presented) The instrumented pin member as recited in claim 21, wherein the sensing device further comprises:

an axial stress measurement configuration and a bending stress measurement configuration, the sensing device being in the bending stress measurement configuration when the axial

sensors of the first and second y axis sensor elements are in one of the first aligned y axis configuration and the second aligned y axis configuration.

23. (Previously presented) The instrumented pin member as recited in claim 22, wherein the sensing device is in the axial stress measurement configuration when the axial sensors of the first and second y axis sensor elements are not in one of the first aligned y axis configuration and the second aligned y axis configuration.

24. (Previously presented) The instrumented pin member as recited in claim 11, wherein the sensing device further comprises:

an x axis bridge having a left side and a right side, the left x axis bridge side comprising first and second positions and the right x axis bridge side comprising first and second positions;

the first position of the left x axis bridge side and the first position of the right x axis bridge side being in a first aligned x axis configuration; and

the second position of the left x axis bridge side and the second position of the right x axis bridge side being in a second aligned x axis configuration;

the axial sensors of the first and second x axis sensor elements being in one of the first aligned x axis configuration and the second aligned x axis configuration, and the tangential sensors of the first and second x axis sensor elements being in the other of the first aligned x axis configuration and the second aligned x axis configuration; and

a y axis bridge having a left side and a right side, the left y axis bridge side comprising first and second positions and the right y axis bridge side comprising first and second positions;

the first position of the left y axis bridge side and the first position of the right y axis bridge side being in a first aligned y axis configuration; and

the second position of the left y axis bridge side and the second position of the right y axis bridge side being in a second aligned y axis configuration;

the axial sensors of the first and second y axis sensor elements being in one of the first aligned y axis configuration and the second aligned y axis configuration, and the tangential sensors

of the first and second y axis sensor elements being in the other of the first aligned y axis configuration and the second aligned y axis configuration.

25. (Currently Amended) The instrumented pin member as recited in claim 1, wherein the sensing device further comprises a bridge assembly having an axial stress measurement configuration and a bending stress measurement configuration.

26. (Currently amended) An instrumented pin member, comprising:

a pin member body disposed about a pin member axis, the pin member body comprising a bending portion;

a sensing device positioned at the pin member body within the bending portion for sensing a bending strain in the bending portion exclusive of a net axial strain, and for outputting a sensor measurement signal representative of the bending strain;

a sensor measurement signal output device for outputting the sensor measurement signal from the sensing device; and

~~The instrumented pin member as recited in claim 1, further comprising~~ a switching device operatively coupled to the sensing device for switching between an axial stress measurement configuration and a bending stress measurement configuration.

27. (Previously presented) The instrumented pin member as recited in claim 26, wherein the switching device comprises a solid state switching circuit.

28. (Previously presented) The instrumented pin member as recited in claim 26, wherein:

the pin member comprises a head; and

the switching device is positioned at the pin member head.

29. (Previously presented) The instrumented pin member as recited in claim 28, wherein:

the pin member head includes an external surface and a notch disposed in the external surface; and

the switching device is mounted to the external surface.

30. (Previously presented) The instrumented pin member as recited in claim 26, wherein:

the pin member comprises a head including a head cavity; and

the switching device is positioned at the pin member head cavity.

31. (Previously presented) The instrumented pin member as recited in claim 26, wherein the switching device comprises a periodic switching signal source for providing a periodic switching signal.

32. (Cancelled)

33. (Previously presented) The instrumented pin member as recited in claim 26, wherein:

the sensing device comprises a pair of bridges, each having an axial stress measurement configuration and a bending stress measurement configuration; and

the switching device comprises a switch operatively coupled to the pair of bridges for switching the pair of bridges between the axial stress measurement configuration and the bending stress measurement configuration.

34. (Previously presented) The instrumented pin member as recited in claim 33, wherein the switching device switches the pair of bridges to the bending stress measurement configuration substantially simultaneously.

35. (Original) An instrumented pin member, comprising:

a pin member body disposed about a pin member axis, the pin member body comprising a

bending portion;

a sensing device positioned on the pin member body within the bending portion for sensing a bending stress in the bending portion during a bending stress measurement mode and for outputting a sensor measurement signal;

a switching device operatively coupled to the sensing device for switching the sensing device in and out of the bending stress measurement mode; and

a sensor signal output device for communicating the sensor measurement signal.

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Previously presented) A method for measuring bending at a joint, the method comprising:

disposing an instrumented pin member at the joint, the instrumented pin member comprising a pin member body disposed about a pin member axis, the pin member body comprising a bending portion;

sensing a bending strain in the bending portion exclusive of a net axial strain during a bending stress measurement mode and outputting a sensor measurement signal; and

communicating the sensor measurement signal to a data receiving device.

42. (Previously presented) The method as recited in claim 41, wherein the disposing of the instrumented pin member comprises disposing a plurality of instrumented pin members at the joint so that the instrumented pin members are substantially equally spaced about the joint.

43. (Previously presented) The method as recited in claim 41, wherein the sensing includes switching in and out of the bending stress measurement mode.

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Cancelled)

49. (Cancelled)

50. (Cancelled)

51. (Cancelled)

52. (Cancelled)

53. (Cancelled)

54. (Cancelled)

55. (Cancelled)

56. (Cancelled)

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 7. The X and Y axes have been rotated 45 degrees to reflect the proper placement of sensor elements BX1, BX2, BY1, and BY2. The entire drawing has then been rotated 45 degrees in the opposite direction. The axes were previously misplaced. The specification describes the proper placement of the sensor elements in paragraph 57:

[0057] The sensing device according to the preferred embodiments will now be described. In these illustrative embodiments, a sensing device is provided which comprises first and second x axis sensor elements BX1 and BX2, respectively, and first and second y axis sensor elements BY1 and BY2, respectively (shown in Fig. 7). Each of the sensor elements lies on the perimeter of groove 92, and thus essentially at shank perimeter 78, all within plane 80. *Sensor elements BX1 and BX2 lie along the x axis on opposite sides of shank perimeter 78, and sensor elements BY1 and BY2 lie on the y axis on opposite sides of shank perimeter 78.* The x axis sensor elements thus are disposed at 90 degrees with respect to the y axis sensor elements. Each of the sensor elements BX1, BX2, BY1 and BY2 comprises a pair of sensors including an axial or "tension" sensor, denoted by a "T," and a tangential or "compression" sensor, denoted by a "C" after the sensor element designation, e.g., BX1(T) or BX1(C). (Emphasis added)